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Specification

1. Title of the Invention
EYE MAKEUP
2. Claim

Water-in-oil eye makeup characterized by the fact that it contains a solid, semisolid, or liquid oily component; a volatile branched hydrocarbon; an organic gelling agent; hydrophobic anhydrous silica; and water as the essential ingredients.

3. Detailed Description of the Invention

The present invention relates to water-in-oil eye makeup characterized by the fact that it contains a solid, semisolid, or liquid oily component; a volatile branched hydrocarbon; an organic gelling agent; hydrophobic anhydrous silica; and water as the essential ingredients. The object of the invention is to improve the drying properties, water-resistance, oil-resistance, coverage, safety, and stability of the eye makeup.

Oil-in-water, film-forming, nonaqueous, and water-in-oil eye makeup such as eye liner and mascara are known in the prior art.

Oil-in-water eye makeup, which consists of a solid, semisolid, or liquid oily component and water, does not have problems with coverage (film evenness and spread), drying properties, safety, or stability, but it has extremely poor water resistance and poor oil resistance. In other words, a drawback of oil-in-water eye makeup is that it has poor lasting properties.

Film-forming eye makeup, which consists of a synthetic resin emulsion and water, does not have a lot of problems, except for water resistance. Such makeup cannot withstand swimming in pools or the ocean or rigorous sports such as tennis. Another drawback of film-forming eye makeup is that the film feels foreign on the skin.

Nonaqueous eye makeup, which consists of a solid, semisolid, or liquid oily component and a volatile branched hydrocarbon, does not have problems with water resistance, but it has extremely poor oil resistance, poor drying properties, and somewhat poor coverage, safety, and stability. Another drawback of nonaqueous eye makeup is that the cosmetic finish is readily susceptible to breakdown from sebum.

Water-in-oil eye makeup, which consists of a solid, semisolid, or liquid oily component, a volatile branched hydrocarbon, and water, does not have problems with water resistance, but it has extremely poor drying properties and oil resistance, poor stability, and somewhat poor coverage and safety. Other drawbacks include the fact that the cosmetic finish is readily susceptible to breakdown from sebum and prone to separation. Almost no eye makeups of this type are on the market.

As described hereinabove, the prior art oil-in-water eye makeup has advantages such as having good coverage (i.e., even film formation and good spread), the ability to be worked to the desired finish, and a high degree of safety. However, it consists of an oily component and water, and a drawback is that when the dried makeup is wetted by water, tears, sweat, or sebum, it generally returns to its pre-drying state, smudges, and becomes mottled, readily soiling the area around the eyes. The prior art

nonaqueous eye makeup has good water resistance and does not smudge or come off when wetted by water, tears, sweat, or the like. However, since it is composed of an oily component and a volatile branched hydrocarbon, a drawback of this type of eye makeup is that, generally speaking, sebum, the oily components in [other] makeup, and the like dissolve the dry applied makeup, and it smudges and moves by blinking to readily soil the area around the eyes.

The present invention combines the advantageously high degrees of coverage and safety of the above-described oil-in-water eye makeup and the advantageous water resistance of the above-described nonaqueous eye makeup and overcomes the disadvantages and drawbacks of these types of eye makeup.

Thus, the eye makeup of the invention is a water-in-oil eye makeup consisting of a solid, semisolid, or liquid oily component, a volatile branched hydrocarbon, an organic gelling agent, hydrophobic anhydrous silica, and water. The essential ingredients of the invention are described hereinbelow.

The solid, semisolid, or liquid oily component is any oily raw material generally used in cosmetics such as liquid paraffin, squalane, solid paraffin wax, candelilla wax, carnauba wax, lanolin derivatives, beeswax, Japan wax, myristic acid, cetanol, isopropyl myristate, and silicone oil.

The volatile branched hydrocarbon is, for example, IP Solvent (made by Idemitsu Petrochemical Kabushiki Kaisha), a synthetic petroleum-based hydrocarbon. Its main ingredient is isoparaffin, which is present in amounts of at least 95 percent.

What is meant by an organic gelling agent are sucrose fatty acid esters, dextrin fatty acid esters, metallic soaps, organic bentonite, and the like.

The hydrophobic anhydrous silica is, for example, Aerogel R-972 (Nihon Aerogel Kabushiki Kaisha) and Taranox 500 (made by Tarco Incorporated). Aerogel R-972 consists of a silicon dioxide base in which a portion of the hydrophilic hydroxyl groups usually covering the surface of silica are substituted with dimethyldichlorosilane groups. Taranox 500 consists of a silicon dioxide base in which the hydrophilic hydroxyl groups usually covering the surface of silica are substituted with hydrophobic trimethylsiloxyl groups.

The oily component used in the invention is blended in proportions ranging from 3 to 50 percent by weight (referred to as percent hereinbelow). Amounts ranging from 5 to 20 percent are especially preferred from the standpoint of the usage characteristics of the eye makeup. If less than 3 percent is used, a film does not form, and [the composition] does not perform as eye makeup. On the other hand, if more than 50 percent is used, the viscosity of the eye makeup system will increase and be uncontrollable, and oil resistance will be extremely poor.

Next, the volatile branched hydrocarbon can be blended in amounts ranging from 20-70 percent, with 25-60 percent being especially preferred. If less than 20 percent is used, drying properties will be remarkably poor, and if more than 70 percent is used, the viscosity of the system will drop and be difficult to control, and stability will be poor.

Next, the organic gelling agent can be blended in amounts ranging from 1 to 15 percent, with 2 to 10 percent being especially preferred. If less than 1% is used, the eye makeup shows poor stability due to insufficient gelling capacity. On the other hand, if more than 15% is used, there is too much gelling capacity, and viscosity becomes difficult to control.

Next, the hydrophobic anhydrous silica can be blended in amounts ranging from 0.5 to 5 percent, with 1 to 4 percent being especially preferred. If less than 0.5 percent is used, the water cannot be stably dispersed in the oil, and the effect of the invention cannot be achieved. If more than 5 percent is used, the system forms a solidified gel and is difficult to use.

Finally, water can be blended in amounts ranging from 5 to 60 percent, with 10 to 40 percent being especially preferred. If less than 5 percent is used, the eye makeup has the drawbacks of nonaqueous eye makeup. If more than 60 percent is used, water resistance will be remarkably poor as will lasting properties.

The eye makeup of the invention is constituted in the manner described hereinabove, and either eye liner or mascara can be obtained by selecting a suitable type and amount of oily raw material.

In addition to the above-named ingredients, suitable additives such as pigments, pigment-dispersing agents, antioxidants, plasticizers, viscosity builders, oil-soluble resins, perfumes, and preservatives can be added to the eye makeup of the invention.

In addition to having the above-described composition, a feature of the eye makeup of the invention is that hydrophobic anhydrous silica containing water dispersed as fine droplets is dispersed in oil and stabilized by an organic gelling agent.

The methods used to evaluate properties of the eye makeup of the invention such as drying properties, water resistance, oil resistance, coverage, safety, and stability are described hereinbelow.

(1) Drying Properties Test: A suitable amount of sample was collected on a 0.3 × 7 × 12 cm glass plate and worked to an even film with a 2-mil doctor blade, and the time required to dry at ordinary temperature was checked.

(2) Water Resistance Test: The sample was prepared by the same method as in (1) and dried for 24 h at ordinary temperature. Then deionized water was dropped onto the surface of the sample with a pipette, and the sample was wiped with cotton 15 sec, 30 sec, 1 min, 5 min, 10 min, and 30 min later.

(3) Oil Resistance Test: Performed in the same way as (2) except that squalane was used instead of deionized water. The sample was checked in the same way.

(4) Coverage Test: For eye liner, an eyeliner brush was loaded with sample and set in a recorder. The paper was moved at a rate of 12 cm/min so that a straight line was drawn, and the mark left by the brush was checked. For mascara, a mascara brush was loaded with sample and set in a recorder. Simulated hair (3-denier nylon) was fastened securely into position, the brush was moved at a speed of 12 cm/min to apply the sample, and the mark left by the brush was checked.

(5) Safety Test: Drops of sample were applied to the eyelids of rabbits, which were checked 1, 4, 24, 48, and 72 h later, and 4-7 days later.

(6) Stability Test: Samples were placed in 80-mL sample bottles and kept in [either] a 40°C [or] 0°C constant temperature bath and then checked 1 wk, 2 wk, 1 mo, and 3 mo later.

The results of the property tests are shown below for each eye makeup type.

Type of Eye Makeup / Property / Composition	Drying Properties	Water Resistance	Oil Resistance	Coverage	Safety	Stability
Water-in-oil eye makeup of the invention — Oily component, volatile branched hydrocarbon, organic gelling agent, hydrophobic anhydrous silica, and water	○	◎	○	○	○	◎
Oil-in-water eye makeup — Oily component and water	○	✕✕	×	◎	○	○
Film-forming eye makeup — Synthetic resin emulsion and water	○	△	○	○	○	○
Nonaqueous eye makeup — Oily component and volatile branched hydrocarbon	×	◎	✕✕	△	△	△
Water-in-oil eye makeup — Oily component and volatile branched hydrocarbon	✕✕	◎	✕✕	△	△	×

Grading Scale
◎ Excellent
○ Good
△ Fair
× Poor
✕✕ Extremely poor

Working examples are described hereinbelow.

Working Example 1 Black Eye Liner

Solid paraffin wax	5%	
IP Solvent	46	
Dextrin fatty acid ester	3	A
Iron oxide black	8	
Talc	8	
Perfume	As suitable	
Aerogel R-972	3	
Deionized water	27	B
Preservative	As suitable	

(Preparation) A was heated to 70°C and stirred until even. B was stirred until even at high speed and heated to 70°C. B was added to A and dispersed, and the mixture was cooled and packed in eye liner containers.

Working Example 2 Brown Eye Liner

Solid paraffin wax	5%	
Liquid paraffin	5	
IP solvent	44	
Dextrin fatty acid ester	3	
Soybean phospholipids	1	
Iron oxide black	5	A
Iron oxide red	2	
Iron oxide yellow	1	
Talc	3	
Mica	4	
Perfume	As suitable	
Taranox 500	2	
Deionized water	20	B
1,3-Butylene glycol	5	
Preservative	As suitable	

(Preparation) Manufactured by the same method as in Working Example 1.

Working Example 3 Black Mascara

Beeswax	3%	
Carnauba wax	3	
Solid paraffin wax	2	
IP Solvent	39	
Dextrin fatty acid ester	3	
Soybean phospholipids	1	A
Iron oxide black	10	
Talc	6	
Mica	6	
Perfume	As suitable	
Aerogel R-972	2	
Deionized water	20	B
1,3-Butylene glycol	5	
Preservative	As suitable	

(Preparation) Manufactured by the same method as in Working Example 1 and packed in mascara containers.

Working Example 4 Brown Mascara

Beeswax	5%	
Solid paraffin wax	3	
IP Solvent	40	
Metallic soap	2	
Organic bentonite	2	
Sucrose fatty acid ester	4	A

Iron oxide black	5	
Iron oxide red	2	
Iron oxide yellow	2	
Talc	10	
Perfume	As suitable	
Taranox 500	3	
Deionized water	17	B
Poly(ethylene glycol) 400	5	
Preservative	As suitable	

(Preparation) Manufactured by the same method as in Working Example 1 and packed in mascara containers.

End

Applicant: Kabushiki Kaisha Kobayashi Kose

Amendment (Automatic)

March 23, 1983

To the Commissioner of the Japanese Patent Office the Honorable Kazuo Wakasugi

1. Case Identifier
   Patent Application No. Sho 57-61140
2. Title of the Invention
   EYE MAKEUP
3. Party Filing Amendment
   Relationship to case: Applicant
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   Representative: Reijiro Kobayashi [sealed]
4. Date of Amendment Order
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5. Subject of Amendment
   "Detailed Description of the Invention" section of the Specification
6. Description of the Amendment
   (1) Line 16, page 4 of the Specification
   "20 to 70 percent" is to be revised to "10 to 70 percent."
   (2) Line 17, page 4 of the Specification
   "25 to 60 percent" is to be revised to "15 to 60 percent."
   (3) Lines 17-18, page 4 of the Specification
   "less than 20 percent" is to be revised to "less than 10 percent."